

**UTILITY  
PATENT APPLICATION  
TRANSMITTAL**

Mail Date October 20, 2000

Attorney Docket No.:	PT02977Y	Total Pages:	2
First-Named Inventor or Application Identifier	Kwok, et al.		
Title:	AN ELECTRONIC DEVICE HAVING AN INTERACTIVE DISPLAY SCREEN		
Express Mail Label No.:			

(Only for new nonprovisional applications under 37 CFR 1.53(b))

<b>APPLICATION ELEMENTS</b> (see MPEP chapter 600 concerning utility patent application contents)	<b>ADDRESS TO:</b>	Assistant Commissioner for Patents Box Patent Application Washington, D.C. 20231
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1.	<input checked="" type="checkbox"/> Fee Transmittal Form <i>in duplicate</i>	
2.	<input checked="" type="checkbox"/> Specification	Total Pages <input type="text" value="8"/>
3.	<input checked="" type="checkbox"/> Drawings	Total Sheets: <input type="text" value="3"/>
4.	<input checked="" type="checkbox"/> Oath or Declaration with Power of Attorney	Total Pages <input type="text" value="6"/>
	a. <input checked="" type="checkbox"/> Newly Executed (original or copy)	
	b. <input type="checkbox"/> Copy from prior application (37 CFR §1.63(d)) (for continuation/divisional with Box 17 completed)	
	i. <input type="checkbox"/> <u>Deletion of Inventor(s):</u> Signed statement attached deleting inventor(s) named in the prior application (see 37 CFR §1.63(d)(2) and 1.33(b))	
5.	<input type="checkbox"/> Incorporation by Reference ( <i>useable if Box 4b is checked</i> ) The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.	
6.	<input type="checkbox"/> Microfiche Computer Program (Appendix)	
7.	<input type="checkbox"/> Nucleotide and/or Amino Acid Sequence Submission	

**ACCOMPANYING APPLICATION PARTS**

8.	<input checked="" type="checkbox"/> Assignment Papers ( <i>cover sheet and document(s)</i> )	
9.	<input type="checkbox"/> 37 CFR §3.73(b) Statement (when there is an assignee)	<input type="checkbox"/> Power of Attorney
10.	<input type="checkbox"/> English Translation Document ( <i>if applicable</i> )	
11.	<input checked="" type="checkbox"/> Information Disclosure Statement (IDS)/PTO-1449	<input checked="" type="checkbox"/> Copies of IDS Citations
12.	<input type="checkbox"/> Preliminary Amendment	
13.	<input checked="" type="checkbox"/> Return Receipt Postcard (MPEP 503) ( <i>should be specially itemized</i> )	
14.	<input type="checkbox"/> Small Entity Statements	

15.	<input type="checkbox"/> Certified Copy of Priority Document(s)
16.	<input type="checkbox"/> Other:
17.	<b>IF A CONTINUING APPLICATION</b> <i>check appropriate box and supply the requisite information below and in a preliminary amendment:</i>
	<input type="checkbox"/> Continuation <input type="checkbox"/> Divisional <input type="checkbox"/> Continuation-in- Part (CIP)    Prior Appl. No. _____
Prior Appl. information:    Examiner:    Group/Art Unit:	

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SIGNATURE	<i>Philip P. Macnak</i>	<i>10/20/2000</i>	
DATE	Mail Date October 20, 2000	Deposit Account User ID	50-0757

## PATENT

## FEE TRANSMITTAL

Application Number	
Filing Date	
First-Named Inventor	Kwok, et al.
Examiner Name	
Group/Art Unit	
Title:	AN ELECTRONIC DEVICE HAVING AN INTERACTIVE DISPLAY SCREEN
Attorney Docket No.	PT02977Y
<b>TOTAL AMOUNT OF PAYMENT</b>	<b>\$750.00</b>

**METHOD OF PAYMENT**


(check one)

**FEE CALCULATION**

(continued)

1. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:	2. <b>EXTRA CLAIM FEES</b>																												
<table border="1"> <tr> <td>Deposit Account No.</td> <td>Deposit Account Name</td> </tr> <tr> <td>50-0757</td> <td>Motorola, Inc.</td> </tr> </table>	Deposit Account No.	Deposit Account Name	50-0757	Motorola, Inc.	<table border="1"> <tr> <th>Claims</th> <th>Extra Claims</th> <th>Fee from Below</th> <th>Fee Paid</th> </tr> <tr> <td>Total 5 -20**</td> <td>=</td> <td>x</td> <td>=</td> </tr> <tr> <td>Ind. 1 -3</td> <td>=</td> <td>x</td> <td>=</td> </tr> <tr> <td colspan="4">Multiple Dependent</td> </tr> </table>	Claims	Extra Claims	Fee from Below	Fee Paid	Total 5 -20**	=	x	=	Ind. 1 -3	=	x	=	Multiple Dependent											
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<input checked="" type="checkbox"/> Charge any additional Fee Required under 37 CFR § 1.16 and 1.17 <input type="checkbox"/> Charge the Issue Fee set in 37 CFR § 1.18 at the of the Mailing of the Notice of Allowance	<p>**or number previously paid, if greater; For Reissues, see below</p>																												
<b>FEE CALCULATION</b>	<b>Large Entity</b>																												
1. <b>BASIC FILING FEE</b>	<table border="1"> <tr> <th>Fee Code</th> <th>Fee (\$)</th> <th>Fee Description</th> </tr> <tr> <td>103</td> <td>18</td> <td>Claims in excess of 20</td> </tr> <tr> <td>102</td> <td>80</td> <td>Ind. claims in excess of 3</td> </tr> <tr> <td>104</td> <td>270</td> <td>Multiple dependent claim, if not paid</td> </tr> <tr> <td>109</td> <td>80</td> <td>**Reissue independent claim over original patent</td> </tr> <tr> <td>110</td> <td>18</td> <td>**Reissue claims in excess of 20 and over original patent</td> </tr> </table>	Fee Code	Fee (\$)	Fee Description	103	18	Claims in excess of 20	102	80	Ind. claims in excess of 3	104	270	Multiple dependent claim, if not paid	109	80	**Reissue independent claim over original patent	110	18	**Reissue claims in excess of 20 and over original patent										
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<b>Large Entity</b>	<b>SUBTOTAL (2)</b>																												
<table border="1"> <tr> <th>Code</th> <th>Fee (\$)</th> <th>Fee Description</th> <th>Fee Paid</th> </tr> <tr> <td>101</td> <td>690</td> <td>Utility filing fee</td> <td>\$710</td> </tr> <tr> <td>106</td> <td>310</td> <td>Design filing fee</td> <td></td> </tr> <tr> <td>107</td> <td>480</td> <td>Plant filing fee</td> <td></td> </tr> <tr> <td>108</td> <td>690</td> <td>Reissue filing fee</td> <td></td> </tr> <tr> <td>114</td> <td>150</td> <td>Provisional filing fee</td> <td></td> </tr> <tr> <td colspan="3">Subtotal (1)</td> <td>\$710</td> </tr> </table>	Code	Fee (\$)	Fee Description	Fee Paid	101	690	Utility filing fee	\$710	106	310	Design filing fee		107	480	Plant filing fee		108	690	Reissue filing fee		114	150	Provisional filing fee		Subtotal (1)			\$710	<b>FEE CALCULATION</b>  (continued - next page)
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108	690	Reissue filing fee																											
114	150	Provisional filing fee																											
Subtotal (1)			\$710																										

Additional Fees (continued)		Large Entity	
Fee Code	Fee (\$)	Fee Description	Fee Paid
105	130	Surcharge - late filing fee or oath	
127	50	Surcharge - late provisional filing fee or cover sheet	
139	130	Non-English specification	
147	2520	For filing a request for reexamination	
112	920*	Requesting publication of SIR prior to Examiner action	
113	1840*	Requesting publication of SIR after Examiner action	
115	110	Extension for reply within first month	
116	390	Extension for reply within second month	
117	890	Extension for reply within third month	
118	1390	Extension for reply within fourth month	
128	1890	Extension for reply within fifth month	
119	310	Notice of Appeal	
120	310	Filing a brief in support of an appeal	
121	270	Request for oral hearing	
138	1510	Petition to institute a public use proceeding	
140	110	Petition to revive - unavoidable	
141	1240	Petition to revive - unintentional	
142	1240	Utility issue fee (or reissue)	
143	440	Design issue fee	
144	600	Plant issue fee	
122	130	Petitions to Commissioner	
123	50	Petitions related to provisional applications	
126	240	Submission of IDS	
581	40	Recording each patent assignment per property (times number of properties)	\$40.00
146	710	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	710	For each additional invention to be examined (37 CFR § 1.129(b))	
Other fee (specify)			
Other fee (specify)			
*Reduced by Basic Filing Fee		<b>Subtotal (3)</b>	<b>\$40.00</b>

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SIGNATURE	 <span style="float: right;">10/20/2000</span>		
DATE	Mail Date October 20, 2000	Deposit Account User ID	50-0757

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## APPLICATION INFORMATION

Title Line One:: AN ELECTRONIC DEVICE HAVING AN INTERACTI  
Title Line Two:: VE DISPLAY SCREEN  
Total Drawing Sheets:: 3  
Formal Drawings?: Yes  
Application Type:: Utility  
Docket Number:: PT02977Y



**AN ELECTRONIC DEVICE HAVING AN INTERACTIVE DISPLAY  
SCREEN**

5

FIELD OF THE INVENTION

This invention relates to an electronic device having an interactive display screen. The invention is particularly useful for, but not necessarily limited to, determining when a stylus for interacting with the display screen is stored in an engagement member of the device.

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BACKGROUND ART

Electronic devices such as personal organisers and portable communication devices sometimes use an interactive display screen usually called a touch screen, to allow a user to input data or access functions. In order to achieve a higher resolution than can be obtained by use of a finger, some electronic devices have an associated stylus for activating the interactive display screen. For convenience, the stylus can be typically stored in an engagement member, typically an aperture, in a housing of the electronic device.

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In US patent 5973677, there is disclosed a rechargeable stylus and portable device assembly with an interactive display. The stylus is recharged when inserted into an engagement member in the housing where it is coupled to recharging electrical pads. When using a stylus with a portable communication device, a user typically has the stylus in one hand and the communication device in the other. This may not be ideal as the use may have difficulties in

powering down, powering up or inactivating illumination of the display screen by use of a convention button.

5

## SUMMARY OF THE INVENTION

According to one aspect of the invention there is provided an electronic device comprising:

a controller;  
10 an interactive display screen coupled to said controller;  
a housing having an engagement member for releasably engaging a stylus to allow mounting of a stylus to the housing;

15 an actuator associated with the engagement member, wherein, in use, the actuator provides an activation signal indicative of the stylus engaging or disengaging the engagement member.

Suitably, when in use, the controller may provide a signal to activate the display screen in response to the signal indicative the stylus disengaging the engagement member.

20 Preferably, when the activation signal is indicative of the stylus engaging the engagement member, the electronic device may power down.

Suitably, the actuator may be a biased switch.

25 Preferably, the biased switch may have a protruding member that protrudes into a stylus receiving chamber of the engagement member.

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## BRIEF DESCRIPTION OF THE DRAWINGS

In order that the invention may be readily understood and put into practical effect, reference will now be made to preferred embodiment illustrated in the accompanying drawings in which:

35



Fig. 1 is a top perspective view illustrating an electronic device in accordance with an embodiment of the invention;

5 Fig. 2 is an underside perspective view of the electronic device of Fig. 1 with a stylus engaging an engagement member in a housing of the electronic device;

10 Fig. 3 is an electrical schematic block diagram of circuitry of a first preferred embodiment of the electronic device of Fig. 1; and

Fig. 4 is an electrically schematic diagram of circuitry of a second preferred embodiment of the electronic device of Fig. 1.

#### 15 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

Referring to the Figs. in which like components are designated by identical numerals, reference is first directed to Figs. 1 and 2 which illustrate an  
20 electronic device 9 such as personal organiser or ratio communication device. The electronic device 9 comprises a housing 16 and a stylus 10. Fig.2 shows a stylus 10 engages an engagement member 20 of the  
25 electronic device 9. The electronic device 9 also comprises a interactive screen display 27 to show icons and messages such as telephone number, address data, and to input data. The stylus 10 is provided for interaction with display 27. There is also an  
30 engagement member 20 in the housing 16. The stylus 10 releasably engages by insertion into the engagement member 20 thereby conveniently storing the stylus 10. In this regard, the engagement member 20 can be wholly integrated as a storage chamber within the  
35 housing 16 or mounted on the housing 16 in the form of a clip. As will be apparent to a person skilled

in the art, the stylus 10 interacts with the interactive screen display 27 for selecting functions, accessing data, selecting alphanumeric keys or even freehand writing and drawing that is processed by the electronic device 9.

Referring to Fig. 3, there is illustrated a preferred embodiment of a schematic diagram of circuitry of the electronic device 9. The interactive screen display 27 is coupled to a controller 21 to send message data and instructions there between. The electronic device 9 also comprises an actuator in the form of a biased switch 30 associated with a stylus receiving chamber 18 of the engagement member 20. The switch 30 is normally open and has one terminal coupled to ground and the terminal coupled to a control input 28 of the controller 21 to provide a controlled signal thereto. A pull up resistor is also coupled to control input 28 for maintaining control input 28 to logic "high" until switch 30 is activated. There is also a power supply 33 coupled to the controller 21 and all the necessary components in the circuitry.

The switch 30 has a biased protruding member 35 which protrudes into the stylus receiving chamber 18. The protruding member 35 is activated to electrically connect contacts of switch 30 when the stylus 10 is inserted into the stylus receiving chamber 18 thereby engaging engagement 20. Conversely, the protruding member 35 is inactivated, thereby contacts of switch 30 are electrically isolated (open circuit), when the stylus 10 is removed from engagement member 20. When contacts of the switch 30 are electrically isolated, an activation signal indicative of the stylus 10 disengaging the engagement member 20 is provided to the controller 21. In response this signal, the controller 21 provides an activation signal to

activate the display screen 27. When the stylus 10 is inserted into the receiving chamber 18 the contacts of switch 30 are electrically connected and an activation signal is provided to the controller 21 indicative of the stylus 10 engaging the engagement member 20. As a result, the controller 21 provides a signal to inactivate the display screen 27.

Referring to Fig. 4, there is illustrated a second preferred embodiment of a schematic diagram of circuitry of the electronic device 9. The circuitry has a normally closed switch 50 with two electrical terminals 41 and 42. The terminal 41 is coupled to the power supply 33 and terminal 42 is coupled to control input 28 of the controller 21. A pull down resistor 55 is also coupled to control input 28. All other components are configured identically to those of Fig.3 and therefore require no further description. In use, when the stylus 10 is removed from the chamber 18 switch 50 becomes open circuit therefore control input 28 is pulled to a logic "low" therefore invoking power down of the electronic device 9. In this regard, the storing of vital data and "software housekeeping" is conducted before actual power down as will be an apparent to a personal skill in the art. In contrast, when the stylus 10 is inserted into chamber 18, switch 50 becomes closed thereby providing power to the control input 28 thereby invoking power up of the electronic device 9.

Advantageously, the present invention allows for the device or the display to be automatically inactivated or activated upon the stylus 10 engagement or disengagement with the engagement member 20. As a result, the user can access the information in the assembly more conveniently. The invention may also allow battery charge of the power

supply 33 to be prolonged as the screen 27 is inactivated when the stylus engages engagement member 20.

5 Although the invention has been described and illustrated in the above description and drawings, it is understood that this description is by example only and that numerous changes and modifications can be made by those skilled in the art without departing from the true spirit and scope of the invention. For  
10 example, the biased switch 30 may be replaced with a capacitive, inductive or light sensor as will be apparent to a person skill in the art.

## WE CLAIM:

1. An electronic device comprising:  
5 a controller;  
an interactive display screen coupled to said controller;  
a housing having an engagement member for releasably engaging a stylus to allow mounting of a  
10 stylus to the housing; and  
an actuator associated with the engagement member, wherein, in use, the actuator provides an activation signal indicative of the stylus engaging or disengaging the engagement member.  
15
2. The electronic device as in claim 1 wherein, when in use, the controller provides a signal to activate the display screen in response to the signal indicative the stylus disengaging the engagement  
20 member.
3. The electronic device as in claim 1, when the activation signal is indicative of the stylus engaging the engagement member, the electronic device  
25 powers down.
4. The electronic device as in claim 1, wherein the actuator is a biased switch.
- 30 5. The electronic device as in claim 4, wherein the biased switch has a protruding member that protrudes into a stylus receiving chamber of the engagement member.
- 35

**AN ELECTRONIC DEVICE HAVING AN INTERACTIVE  
DISPLAY SCREEN**

ABSTRACT OF THE DISCLOSURE

5

An electronic device (9) has an interactive screen display (27) which is interactive with a stylus (10). The electronic device (9) has an switch (30) associated with an engagement member (18) of a housing of the device. The switch (30) is actuated when the stylus (10) engages the engagement member (18) to provide an activation signal indicative of the stylus engaging or disengaging the engagement member (18). As a result, the electronic device (9) or display screen is inactivated or activated operatively coupled to the stylus (10) when the stylus engages the engagement member. The actuator provides an activating signal to control the device when the stylus engages or disengages the engagement member. In response to the engagement or disengagement, the display or the device is inactivated or activated.

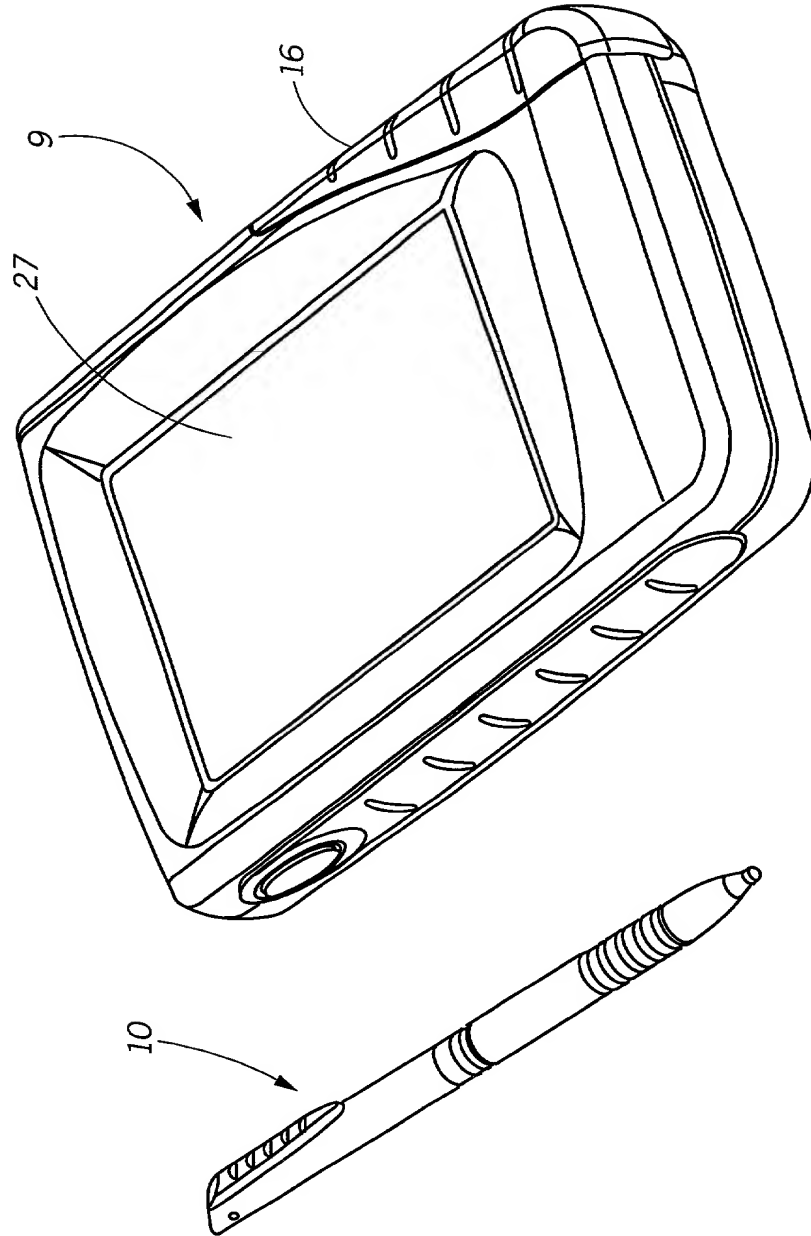
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Figure 3 accompanies this abstract.

25



**FIG. 1**

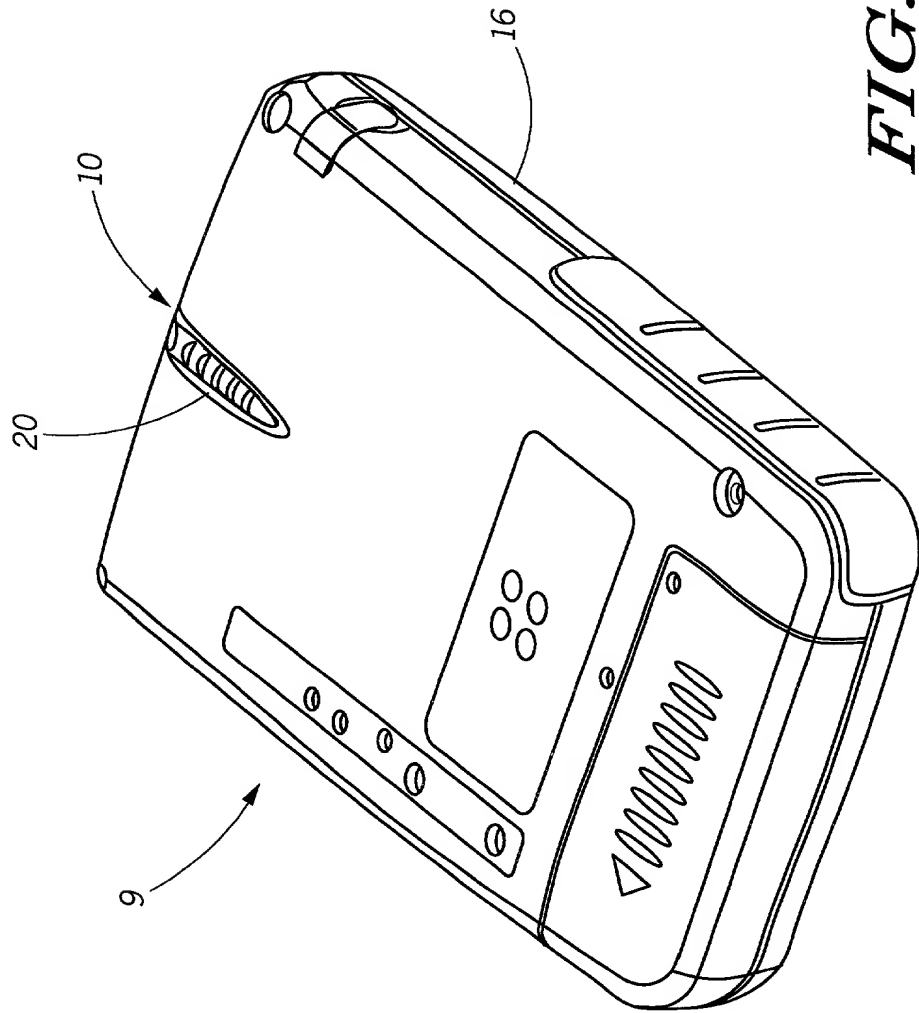
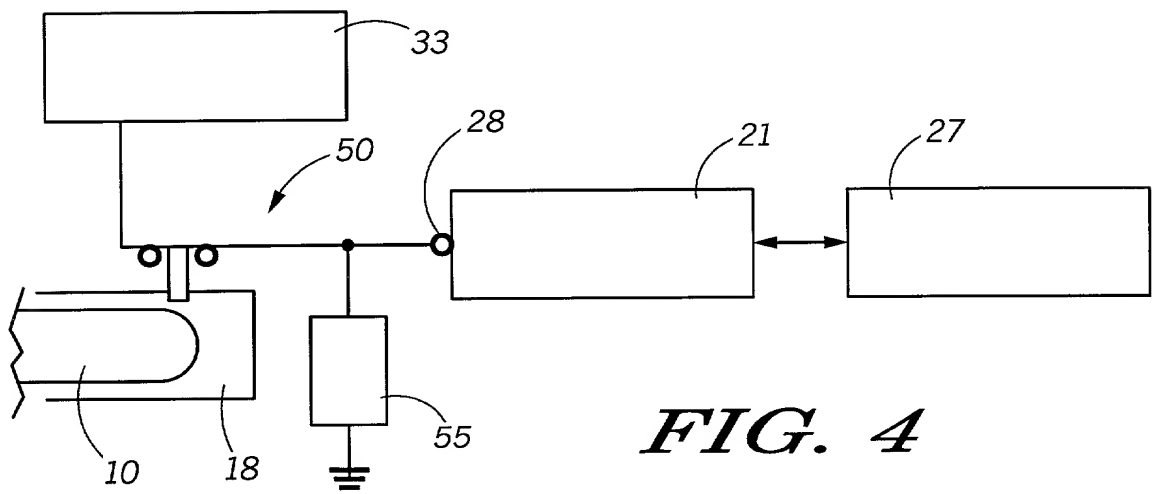
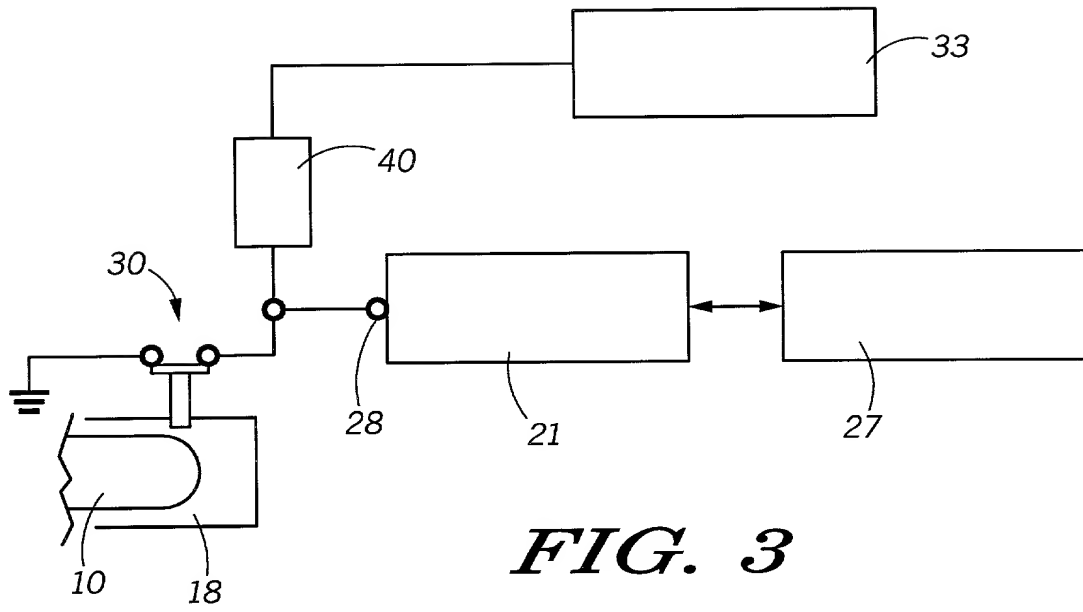


FIG. 2





PATENT APPLICATION DECLARATION  
COMBINED WITH POWER OF ATTORNEY

Attorney's Docket No.: PT02977Y



Regular (Utility)



Design Application

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**AN ELECTRONIC DEVICE HAVING AN INTERACTIVE DISPLAY SCREEN**

the specification of which:



is attached hereto



was filed on: \_\_\_\_\_

as U.S. Serial No.: \_\_\_\_\_

and was amended on \_\_\_\_\_

(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d), of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign/PCT Application(s):



no such application(s) filed



such application(s) identified as follows:

Application Number	Country	Date of Filing (day, month, year)	Priority Claimed Under 37 U.S.C. 119
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No

I hereby claim the priority benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which is material to the patentability of this application and which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Prior U.S. Application(s):

☒ no such application(s) filed

☐ such application(s) identified as follows:

Application No.	Filing Date (day, month, year)	Status (Patented, Pending, Abandoned)

I hereby declare that: as to any claimed subject matter of this application which is common to my earlier United States or foreign application(s), if any, which I have identified above and claimed the benefit of priority thereof, I do not believe that the same was ever known or used in the United States before my invention thereof or patented or described in any printed publication in any country before my invention thereof or more than one year prior to the first of said earlier application(s), or in public use or on sale in the United States more than one year prior to the first of said earlier application(s), and that the said common subject matter has not been patented or made the subject of an inventor's certificate before the date of the first of said earlier U.S. application(s) in any country foreign to the United States on an application, filed by me or my legal representatives or assigns more than twelve months (six months if the present application is a Design patent application) prior to the first of said earlier U.S. application(s), if any; and that, as to any claimed subject matter of this application which is not common to said earlier application(s), if any, I do not know and do not believe that the same was ever known or used in the United States before my invention thereof or patented or described in any printed publication in any country before my invention thereof or more than one year prior to the date of this application, or in public use or on sale in the United States more than one year prior to the date of this application, and that said subject matter has not been patented or made the subject of an inventor's certificate in any country foreign to the United States on an application filed by me or my legal representatives or assigns more than twelve months (six months if the present application is a Design patent application) prior to the date of this application.


I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:


Daniel K. Nichols, Reg. No. 29,420;  
 Keith A. Chanroo, Reg. No. 36,480;  
 Philip P. Macnak, Reg. No. 33,308;  
 Gregg E. Rasor, Reg. No. 34,413;  
 Michael Zazzara, Reg. No. 35,743;  
 James A. Lamb, Reg. No. 38,529;

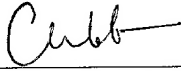
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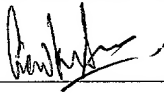
Address all correspondence to , Motorola, Inc., Intellectual Property Department - MS 96, 1500 Gateway Boulevard, Boynton Beach, Florida 33426-8292.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF FIRST-NAMED OR SOLE INVENTOR: FIRST MIDDLE LAST			INVENTOR'S SIGNATURE:	DATE: (SPELLOUT MONTH)
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<b>FULL NAME OF FOURTH-NAMED INVENTOR:</b> FIRST            MIDDLE            LAST  Kin            Soon            LIEW	<b>INVENTOR'S SIGNATURE</b> 	<b>DATE: (SPELLOUT MONTH)</b>  2 OCTOBER 2000
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